

## New Records of Four Hydroids (Cnidaria: Hydrozoa) in Korea

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### ABSTRACT

Some hydroid specimens were collected from Jejudo Island (Seogwipo, Biyangdo, Marado, Mundo) by SCUBA diving. They were identified into *Pennaria disticha* Goldfuss, 1820 of the order Athecatae, and *Hydrodendron leloupi* Hirohito, 1983; *Nemertesia ciliata* Bale, 1914; *Haliaria vegae* Jäderholm, 1903 of the order Thecatae. They were new to the Korean fauna.

**Key words:** taxonomy, hydroids, Hydrozoa, Korea

### INTRODUCTION

The polyp hydroids are a stage of the life cycle in hydroids, and alternate with medusa stage except for some hydroids, sertulariids, plumulariids and others.

Resulting from the previous taxonomic studies 142 species/subspecies of 18 families in 3 orders have been known in Korean waters so far.

Some hydroid specimens were collected from Jejudo Island (Seogwipo, Biyangdo, Marado, Mundo) by SCUBA diving. They were preserved in 5% neutral formalin solution and identified on the basis of the morphological characters. The pictures of parts of colony in figures were taken under the light microscope (Nikon Microscope ECLIPSE 80i attached DIH, Camera and Monitor) and the stereomicroscope (Nikon SMG-U attached DIH, Camera and Monitor). The photographs of whole body were taken with camera, Canon EOS 300D Digital.

### SYSTEMATIC ACCOUNTS

Phylum Cnidaria  
Class Hydrozoa  
Order Athecatae  
Family <sup>1</sup>\*Pennariidae

#### <sup>2</sup>\**Pennaria disticha* Goldfuss, 1820 (Fig. 1A-E)

*Halocordyle disticha*: Calder, 1988, p. 56, figs. 43a, b, 44a, b, 45a-h; Millard, 1975, p. 41, fig. 16C-G; Hirohito, 1988, p. 28, fig. 9a-d, Pl. 1, fig. C.

*Pennaria disticha*: Schuchert, 1996, p. 142, fig. 85a-c.

*Material examined.* Mundo Is., 8 Feb. 2006 (In The Sea Korea).

*Description.* Colony erect, reaching about 10 cm high, growth monopodial with terminal hydranth, arising from ramifying stolon (Fig. 1A, D). Perisarc more or less thick, dark brown, gradually thinner and lighter colored distally, terminating abruptly below hydranths of stem and branches. Stem and branches divided into regular internodes by distinct 3-5 annular nodes (Fig. 1C, E). Branches unbranched again, annulated basally in common. Hydranth clavate or pear-shaped, with pedicel arising on upper side of internodes of branch and a whole of 6-16 long filiform tentacles basally, and short and varied number of capitate tentacles which scattered or roughly verticil medially, and a whorl of 4-6 oral capitate tentacles around upper mouth (Fig. 1B). Each hydrothecal pedicel with 6-9 annulations at its base. No gonophores have been examined. This species attached on hard bottom in about 20 m deep waters.

*Remarks.* This species is a large conspicuous beautiful hydroids which is easy to detect.

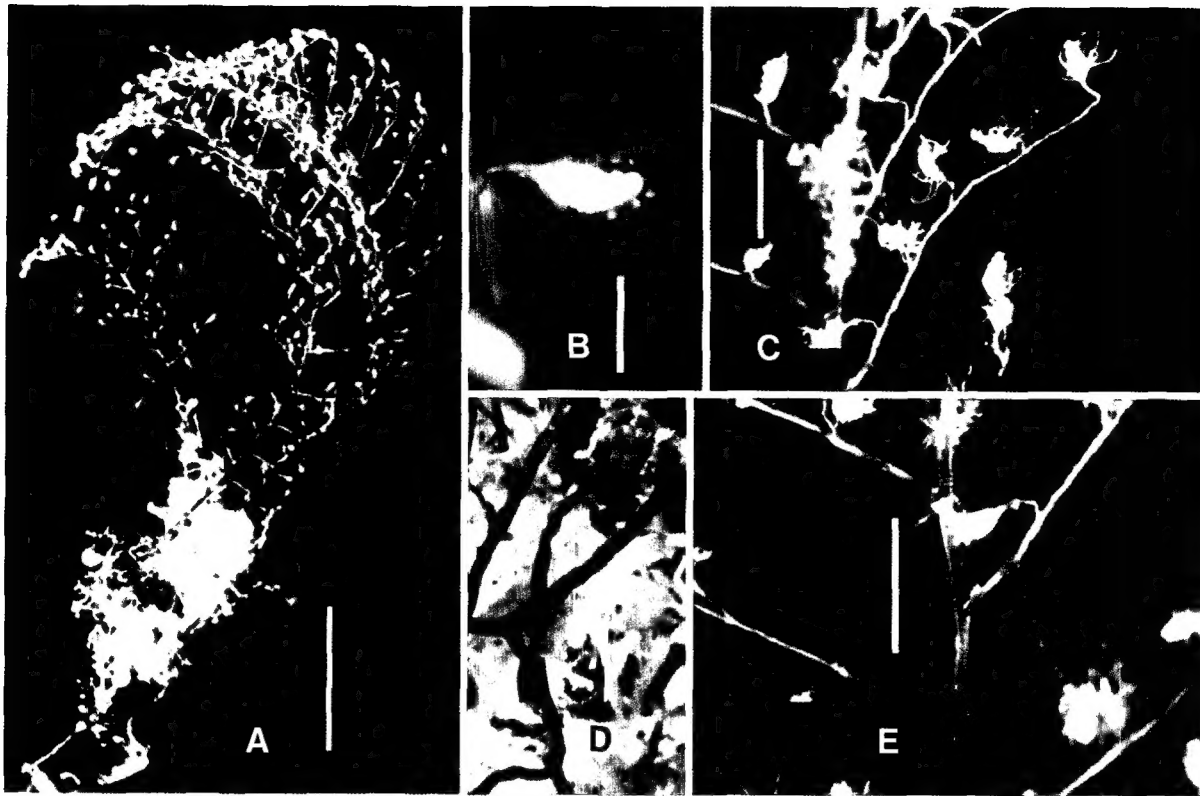
*Distribution.* Circumglobal in tropical to warm-temperate waters.

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**Fig. 1.** *Pennaria disticha*. A, whole colonies; B, hydranth; C, upper portion of colony; D, basal portion of colony; E, middle portion of colony. Scale bars=2 cm (A); 2 mm (B-E).

#### Order Thecatae

#### Family Haleciidae

#### <sup>1</sup>\**Hydrodendron leloupi* Hirohito, 1983 (Fig. 2A-E)

*Hydrodendron leloupi*: Hirohito, 1995, p. 34, fig. 9d-j, pl. 2 fig. D.

**Material examined.** Mundo Is., 12 Jan. 2006 (In the Sea Korea).

**Description.** Colony forming a network in different state from loosely to densely formed. Stem and branches polysiphonic, and monosiphonic terminally and entangled each other and anastomosing to make network (Fig. 2A, C). Monosiphonic branches give rise to branchlets. Branchlets arranged in irregular. Monosiphonic stem and branch and branchlet divided into regular internodes, but in polysiphonic portions internodes indistinct. Each internode giving rise to a hydrotheca and a nematotheca (Fig. 2B, D). Hydrothecae arising from all parts of colony, bell-shaped, widening upwards gradually, margin slight flared or everted outward, with 1-2 annulated pedicel (Fig. 2B, D). Nematothecae occurred on apophysis, bell-shaped, slightly widening up-

wards, without pedicel and with whip-like nematophore (Fig. 2B). No gonothecae have been observed. This species inhabits in about 10 m deep waters.

**Remarks.** This species is similar to *Phylactotheca pacifica* Stechow, 1913 in the shape of hydrotheca, but it is distinguished with *Phylactotheca pacifica* by the specific network of colony and polysiphonic stem and branches. According to Hirohito (1995), the gonothecae arise from hydrorhiza or basal part of colony. With the growth these become cylindrical, the mouth widens, and mouth margin more or less invaginates.

**Distribution.** Korea, Japan.

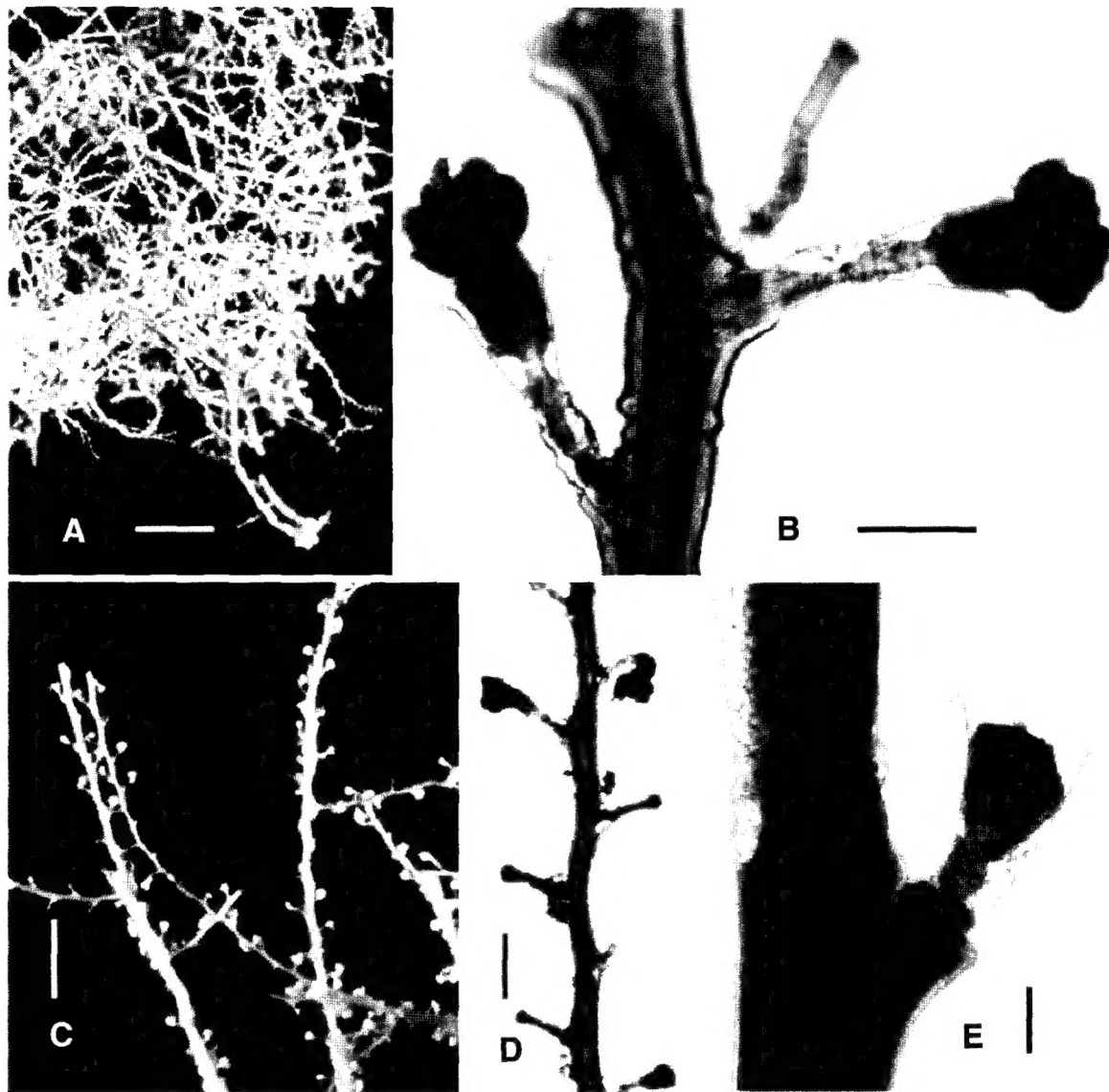
#### Family Plumulariidae

#### <sup>2</sup>\**Nemertesia ciliata* Bale, 1914 (Fig. 3A-F)

*Nemertesia ciliata* Bale, 1914, p. 170, pl. 36, fig. 1; Jäderholm, 1919, p. 23; Yamada, 1959, p. 82; Millard, 1975, p. 383, fig. 121F-K; Hirohito, 1995, p. 266, fig. 90a-c; Ramil and Vervoort, 2006, p. 120.

*Nemertesia polygeniculata* Rho and Park, 1984, p. 256, figs. 2, 3.

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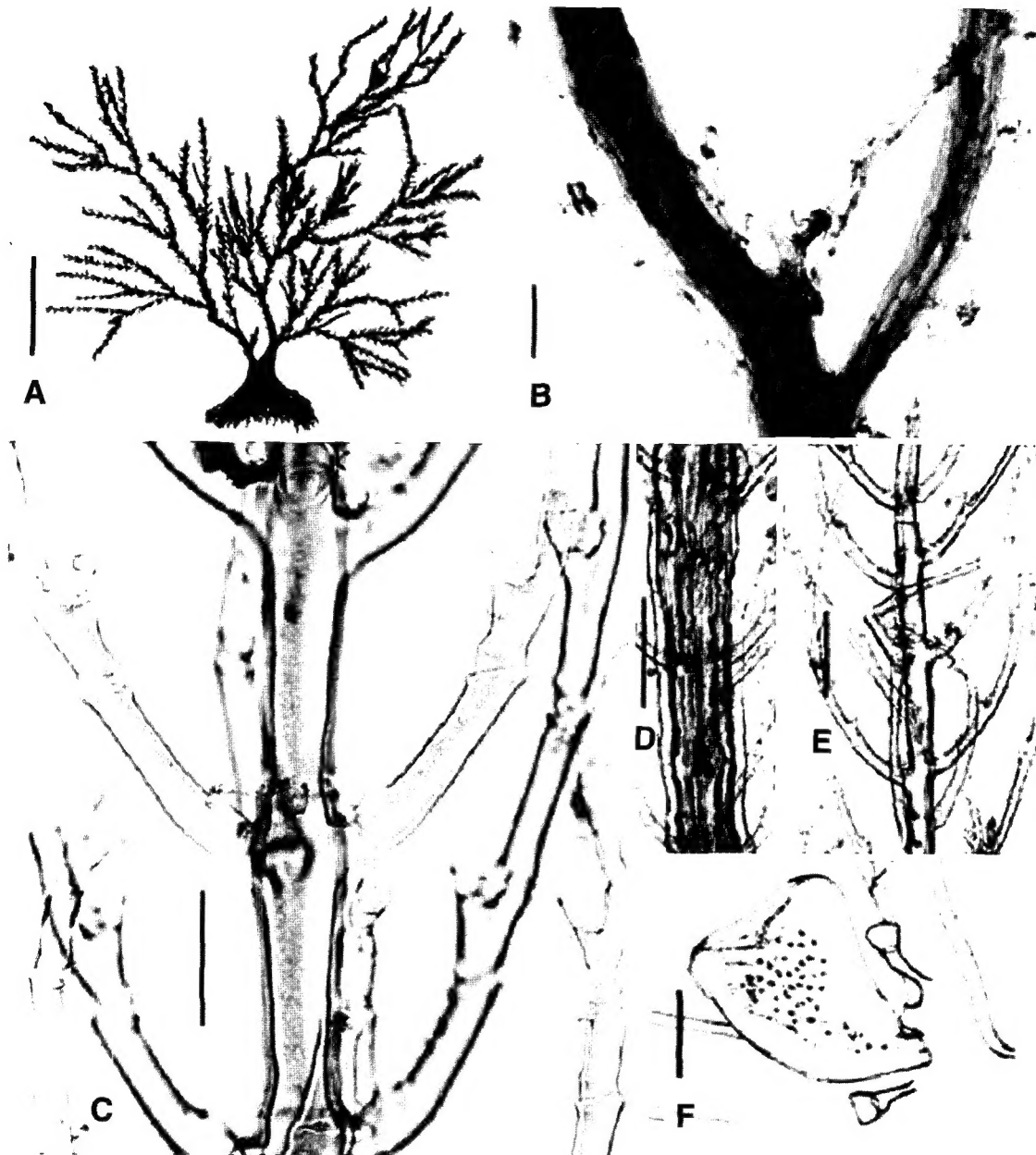


**Fig. 2.** *Hydrodendron leloupi*. A, whole colony; B, hydrothecae and nematotheca; C, part of colony; D, branch with hydrothecae; E, enlarged hydrotheca. Scale bars=10 mm (A); 200  $\mu$ m (B, E); 1 mm (C); 0.5 mm (D).

*Material examined.* Seogwipo, 25 Dec. 1971 (B.J. Rho); 22 May 1982 (J.I. Song); Mipo, 12 May 1974 (B.J. Rho); Ulleungdo Is., 24 Jul. 1976 (J.I. Song).

*Description.* Main stem arising from a tangled mass of short filamentous rootlets, fascicled, zigzag-shaped and divided into regular internodes, with no distinct nodes between each internode (Fig. 3A, B, D). Each internode alternately curved from axis at angled about  $15^\circ$ , so that whole stem formed in zigzag fashion. Main stem divided into regular second and third stems from each other at angles of about  $30^\circ$ . Branches arising from peripheral tubes, repeatedly branching off dichotomous-sympodially in one plane, last branch unfas-

scicled. Hydrocladiae monosiphonic, but sometimes polysiphonic in base, arising straightly from between stems and monosiphonic branches, or arising from on apophysis of axial tube of polysiphonic stem, divided into long thecate internodes and short athecate internodes (Fig. 3C, E). Each thecate internode with a hydrotheca, a median inferior nematotheca, a pair of laterals. Each athecate internode with a median nematotheca. Other nematothecae occurred on tubes of polysiphonic portions. Hydrothecae cup-shaped, widening toward margin, adcauline wall entirely adnate. All nematothecae trumpet-shaped and bithalamic. Lateral nematothecae larger than median nematothecae. Gonothecae



**Fig. 3.** *Nemertesis ciliata*. A, whole colony (from Rho and Park, 1984); B, branching pattern of polysiphonic stem; C, E, part of stem with hydrocladia; D, polysiphonic stem; F, gonotheca (from Rho and Park, 1984). Scale bars=25 mm (A); 0.5 mm (B, D, E); 200  $\mu$ m (C); 100  $\mu$ m (F).

arising from base of apophysis of branches, small oval-shaped and above dome-shaped or truncate (Fig. 3F). This species attached on hard bottoms in about 10-30 m deep waters.

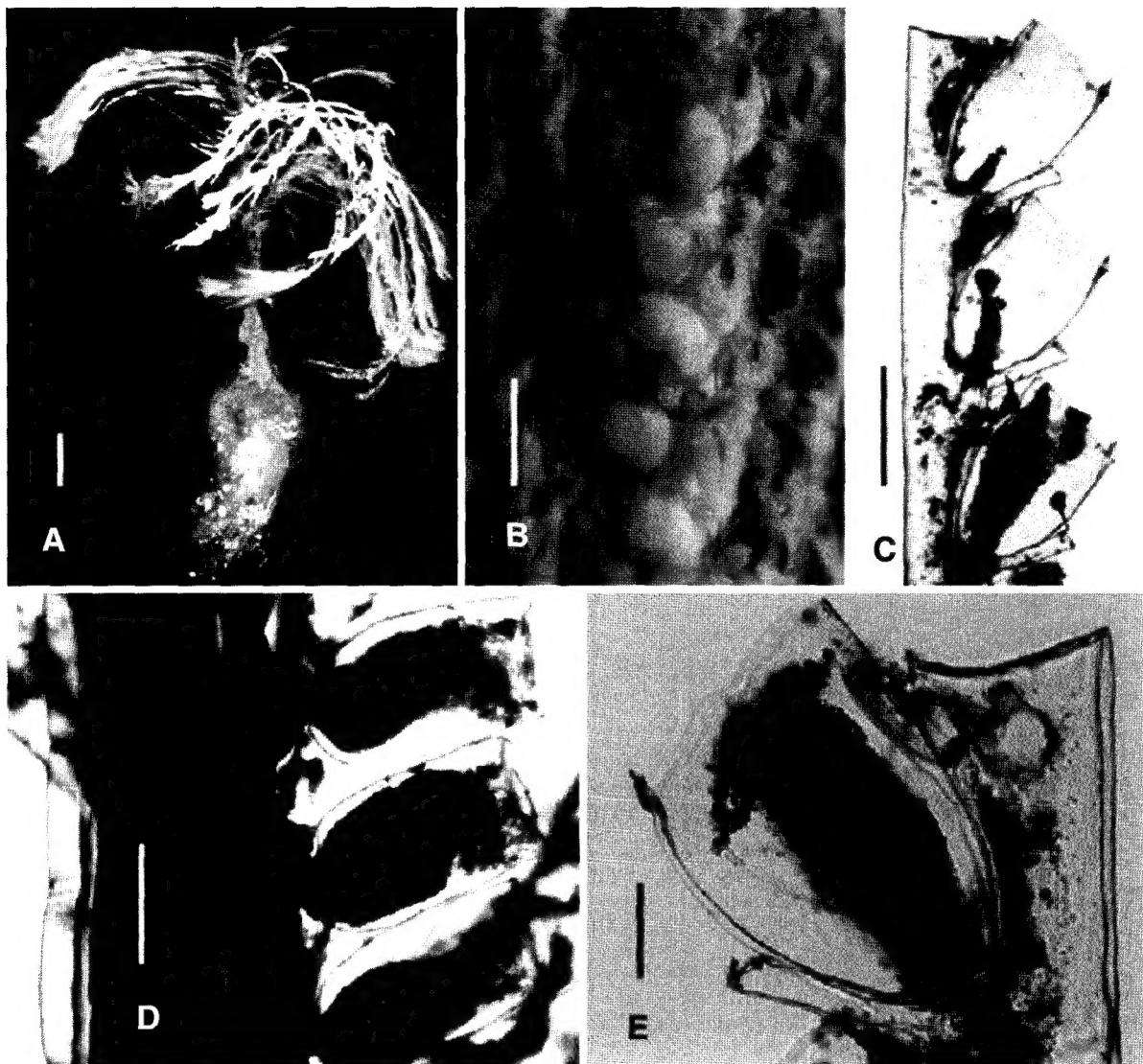
**Remarks.** This species was newly named *N. polygeniculata* by Rho and Park in 1984. But it turned out to be the same species with *N. ciliata* on the basis of all morphological

characters. Ramil and Vervoort (2006) also included *N. polygeniculata* in the synonym of *N. ciliata*.

**Distribution.** Korea, Japan, Tsmalia, South Africa.

<sup>1</sup>***Haliaria vegae* (Jäderholm, 1903) (Fig. 4A-E)**  
*Halicornaria vegae* Jäderholm, 1903, p. 301, taf. 15, figs. 1-4; 1919, p. 26.

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**Fig. 4.** *Haliaria vegae*. A, whole colony; B, part of stem with gonothecae; C, hydrothecae; D, lateral view of gonothecae; E, a hydrotheca. Scale bars=20 mm (A); 0.5 mm (B-D); 200  $\mu$ m (E).

*Haliaria vegae*: Yamada, 1959, p. 83; Hirohito, 1995, p. 291, fig. 102c-e.

*Halicornaria twisti* Rho and Park, 1984, p. 260, fig. 4.

**Material examined.** Seogwipo, 24 Dec. 1971 (B.J. Rho); 15 Apr. 1974 (B.J. Rho); Busan, 12 Nov. 1977 (J.H. Park); Marado Is., 7 Jun. 2001 (J.I. Song).

**Description.** Twisted and fascicled main stem arising from filamentous hydrohiza (Fig. 4A). Branches spirally arising from axial tube, simple, divided into regular internodes, each internode giving rise to hydrocladia alternately. Hydrocladia homomerous, divided into regular internodes, each internode with a large hydrotheca, a median inferior nema-

totheca and a pair of laterals. Hydrothecae deep cup-shaped, with an acute frontal toothed and sinuous margin. Abcauline wall slightly thick, adnate to hydrocaldium for about 2/3 of its length. Intrathecal septum absent. Median inferior nematotheca tubular, reaching to about 2/5 below abcauline wall, adnate to abcauline wall and with 2 apertures distally, one wide and trumpet-shaped and oblique toward hydrotheca, and one small, smooth margin and oblique toward outside. Lateral nematothecae pear-shaped, not reaching to thecal margin, with 2 apertures, one oblique toward hydrocladium and one toward distally (Fig. 4C, E). Gonothecae unprotected, arising from base of hydrocladia, deep cup-shaped, with smooth margin (Fig. 4B, D). This species set in muddy bot-

toms in about 10 m deep waters.

**Remarks.** This species was newly named *Halicornaria twisti* by Rho and Park in 1984. But it turned out to be the same species with *Haliaria vegae* on the basis of all morphological characters.

**Distribution.** Korea, Japan.

## ACKNOWLEDGEMENTS

This work was supported by the Korea Research Foundation Grant funded by Korea Government (MOEHRD, Basic Research Promotion Fund (KRF-2005-070-C00124). The author heartily thanks to In the Sea Korea for its donation of specimens for this work.

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Received March 22, 2007  
Accepted April 27, 2007